IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION

GEMALTO, S.A.,	§	
	§	
Plaintiff,	§	
	§	
vs.	§	**No. 6:10-cv-561 LED-JDL**
	§	
HTC CORPORATION, et al.,	§	**JURY DEMANDED**
	§	
Defendants.	§	
	§	
	§	

REPORT AND RECOMMENDATION OF
UNITED STATES MAGISTRATE JUDGE

Before the Court is Defendants'[1] Motion for Summary Judgment of Non-Infringement (Doc. No. 306) ("MTN."). Plaintiff Gemalto S.A. ("Gemalto") has filed Response (Doc. No. 328) ("RESP."), to which Defendants have filed a Reply (Doc. No. 339) ("Reply") and Gemalto filed a Sur-Reply (Doc. No. 349) ("S-REPLY"). The Court heard argument on February 12, 2013. For the reasons stated below, the Court **RECOMMENDS** that Defendants' Motion be **GRANTED.**

BACKGROUND

Gemalto alleges Defendants infringe certain claims of the following patents: U.S. Patent No. 6,308,317 ("the '317 Patent"); U.S. Patent No. 7,117,485 ("the '485 Patent"); and U.S. Patent No. 7,818,727 ("the '727 patent") (collectively "patents-in-suit"). (Doc. No. 1, at 2). Presently, Gemalto alleges Defendants directly infringe claims 1, 4, and 5 of the '317 Patent, and claims 38 and 39 of the '485 Patent. (Doc. No. 399, at 6–12). [2] Gemalto further alleges Defendants indirectly infringe claim 3 of the '727 Patent. *Id*. The patents-in-suit are all titled

[1] Moving Defendants are: Exedea, Inc., Google Inc., HTC America Inc., HTC Corporation, Motorola Mobility LLC, Samsung Electronics Co., LTD., and Samsung Telecommunications America LLC (collectively "Defendants"). The moving Defendants are the only remaining Defendants in the instant action.

[2] Claims 1, 4, and 5 of U.S. Patent No. 6,308,317; claims 38 and 39 of U.S. Patent No. 7,117,485; and claim 3 of U.S. Patent No. 7,818,727 are the six asserted claims represented by Gemalto as proceeding to trial. (Doc. No. 413).

"Using a High Level Programming Language with a Microcontroller," and they share the same specification and named inventors. The patents-in-suit are generally directed towards methods of implementing a high level programming language such as Java on resource constrained devices such as smartcards; specifically, they disclose a method of compiling Java source code such that the Java Card applet uses less byte code than a traditional Java applet. The disclosed method conserves memory and allows the application to run within the constrained environment on the smartcard. Claim 1 of the '317 patent is representative of the asserted claims and is set forth below:

> An integrated circuit card for use with a terminal, comprising:
> a communicator configured to communicate with the terminal;
> a memory storing:
> an application derived from a program written in a high level programming language format wherein the application is derived from a program written in a high level programming language format by first compiling the program into a compiled form and then converting the compiled form into a converted form, the converting step comprising:
> recording all jumps and their destinations in the original byte codes;
> performing a conversion operation selected from the group: converting specific byte codes into equivalent generic byte codes; modifying byte code operands from references using identifying strings to references using unique identifiers; and
> renumbering byte codes in the compiled form to equivalent byte codes in an instruction set supported by an interpreter on the integrated circuit card; and
> relinking jumps for which the destination address is affected by the conversion operation; and
> an interpreter operable to interpret such an application derived from a program written in a high level programming language format; and
> a processor coupled to the memory, the processor configured to use the interpreter to interpret the application for execution and to use the communicator to communicate with the terminal.

'317 Patent at 19:38-67 (Claim 1).

Claim 1 of the '317 Patent is an independent claim from which claims 4 and 5 depend, and is related to independent claim 38 of the '485 Patent, from which claim 39 depends. Claim 1 of the '317 Patent and claim 38 of the '485 Patent are the only independent claims for which Gemalto alleges direct infringement. These claims, and their dependents, claim an "integrated circuit card." (hereinafter "integrated circuit card claims.").

LEGAL STANDARD

Summary judgment is proper "if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." FED.R.CIV.P. 56(a); *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986). The standard for summary judgment in a patent case is no different. *Nike Inc. v. Wolverine World Wide, Inc.,* 43 F.3d 644, 646 (Fed. Cir. 1994) ("summary judgment is appropriate in a patent case, as in other cases, when there is no genuine issue as to any material fact and the moving party is entitled to judgment as a matter of law.").

The determination of infringement requires a two-step analysis. First, the court construes the claims at issue to determine the scope and meaning at claim construction; next, the court compares the construed claims of the patent against the accused products. *See, e.g., Business Objects, S.A. v. Microstrategy, Inc.,* 393 F.3d 1366, 1371 (Fed. Cir. 2004); *Pitney Bowes, Inc. v. Hewlett–Packard Co.,* 182 F.3d 1298, 1304 (Fed. Cir. 1999). Importantly, claim construction is a question of law, whereas infringement is a question of fact. *See Frank's Casing Crew and Rental Tools, Inc. v. Weatherford Int'l, Inc.,* 389 F.3d 1370, 1376 (Fed. Cir. 2004). Therefore, "summary judgment of non-infringement can only be granted if, after viewing the alleged facts in the light most favorable to the non-movant, there is no genuine issue whether the accused device is encompassed by the claims." *Pitney Bowes,* 182 F.3d at 1304.

DISCUSSION

I. Literal Infringement

As stated above, Gemalto alleges Defendants directly infringe claims 1, 4, and 5 of the '317, and claims 38 and 39 of the '485 patent. "[W]hoever without authorization makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor [directly] infringes the patent." 35 U.S.C. § 271(a) (2000). The plaintiff bears the burden of establishing, by a preponderance of the evidence, that the accused device directly infringes one or more claims of the patent. *Advanced Cardiovascular Sys., Inc. v. Scimed Life Sys., Inc.*, 261 F.3d 1329, 1336 (Fed. Cir. 2001). "Literal infringement requires that each and every limitation set forth in a claim appear in an accused product." *Franks Casing Crew & Rental Tools, Inc. v. Weatherford Int'l, Inc.*, 389 F.3d 1370, 1378 (Fed. Cir. 2004).

A. The Court's Claim Construction

The Court's *Markman* Order leaves no genuine issue of material fact with respect to infringement. The Court construed "integrated circuit card" as "a card containing a single semiconductor substrate having a central processing unit and all program memory." CLAIM CONSTRUCTION ORDER at 15 (Doc. No. 242). The parties presented a dispute as to the inclusion of "all program memory," and the Court resolved the dispute in reference to the Court's construction of "microcontroller," which presented essentially the same dispute. *Id.* at 12. In construing the term "microcontroller," the Court found that "while microcontrollers may access external components as argued by Plaintiff, all program memory necessary for execution of the compressed application must be located on the microcontroller." *Id.* at 8. The Court further stated

that "a microcontroller need only possess sufficient memory to run the Java code" and "[it] may access off chip memory to store and retrieve data stored in a 'static RAM.'" *Id.* at 10.

Gemalto now presents a theory that "cache memory" of a microprocessor can satisfy the "all program memory" limitation. RESP. at 3. Defendants contend that summary judgment is proper because Gemalto's theory is without merit, as it contradicts the plain language of the Court's claim construction. MTN. at 16. This "cache memory" argument presented by Gemalto is entirely new to the Court and was not raised as a dispute during claim construction. Through its expert's declaration, Gemalto contends that cache memory of a microprocessor meets the claim limitation by temporarily storing program instructions for program execution on-chip. *Id.* at 11–14. Defendants maintain that cache memory of a microprocessor cannot be "all program memory" as set forth in the Court's claim construction because if that were the case, a microcontroller could access any amount of off-chip memory and would therefore not be constrained by the amount of memory it can hold. MTN. at 16. This dispute regarding the Court's claim construction serves as the basis for Defendants' instant motion.

Although Gemalto's infringement theory as to cache memory is new, the fundamental dispute raised has already been resolved by the Court through its claim construction. In the context of the Court's construction, "all program memory" means memory permanently holding all program instructions necessary for execution of the compressed application, which includes main memory storage for application code (*e.g.*, compiled Java byte code). CLAIM CONSTRUCTION ORDER at 8; *see, e.g.*, '317 Patent 2:8–16; 26–34 (noting that the microcontroller has "built-in memory" including: random access memory ("RAM"), read only memory ("ROM"), and electrically erasable programmable read only memory ("EEPROM"), and that because of the physical characteristics of a microcontroller being located on a single "chip," it

has considerably less memory than a microprocessor; "…a microcontroller typically has a small RAM of 0.1 to 2.0K, 2K to 8K of EEPROM, and 8K–56K of ROM;" "[i]n a microcontroller, the amount of each kind of memory available is constrained by the amount of space on the integrated circuit used for each kind of memory").

Cache memory temporarily holds instructions on-chip for quick execution. *See, e.g.*, BOLDT DECL. at ¶ 7 ("[c]ache memory operates at very high speed and provides the CPU on the microprocessor with on-chip access to relatively small blocks of data…[c]ache memory on the microprocessors is volatile and loses its data when power is removed); SMITH DECL. at ¶ 15 ("having the on-chip memory allows for the faster execution of because the speed of the L1 instruction cache compared to the slower access times of off-chip system memory"). Gemalto's expert acknowledges that cache memory does not hold all program instructions and may need to access off-chip main memory to execute the application. *Id.* at ¶ 6 ("If the particular program instruction resides in the L1 instruction cache, the L1 instruction cache will immediately provide the program instruction to the CPU…[i]f the particular program instruction does not reside in the L1 instruction cache at that point, the cache controller will determine if the program instruction resides in the L2 cache…[i]f the program instruction does not reside in the L2 cache, the cache controller will retrieve a block of instructions including the requested instruction from the off-chip main system memory (*off-chip RAM or separate flash memory*) and place a copy in the level 2 cache and in the level 1 instruction cache.) (emphasis added). In essence, there is no dispute that cache memory only temporarily holds program instructions loaded from main memory located "off-chip." Pursuant to the Court's claim construction, however, on-chip memory space only temporarily holding program instructions loaded from off-chip main

memory does not constitute "all program memory" necessary for execution. Also necessary for execution is memory space permanently holding all program instructions.

Recognizing that cache memory at times must retrieve off-chip program instructions, Gemalto's expert characterizes these program instructions as "data." SMITH DECL. at ¶ 6. Presumably, such a characterization is made in light of the Court's statement in its *Markman* Order that the "microcontroller may access off chip memory to store and retrieve data stored in a 'static RAM.'" CLAIM CONSTRUCTION ORDER at 10. However, this characterization of "data" is not consistent with the Court's claim construction. Under the Court's construction, the code of an application program (*i.e.* program instructions, such as Java byte code) is expressly distinguished from data used by the application program. *Id.* at 8–10; *see* '317 Patent 16: 1–4; 18: 13–24 (distinguishing "data" from "applications."). Gemalto's argument vitiates the Court's construction by asserting on the one hand all program instructions (*i.e.* all application program code necessary for execution) need only be temporarily stored on-chip in the L1 cache, and on the other hand, when they are not, they are not program instructions. In making this argument, Gemalto's expert has re-construed "all program memory" to constitute only the temporary program instruction storage memory space provided by the L1 cache, from which the program instructions are fetched for execution by the CPU. SMITH DECL. at ¶ 7 ("it is my opinion that the only memory that constitutes "program memory" is the L1 instruction cache…"). Gemalto's expert contends that main memory, where the program instructions are permanently stored, is not program memory because the CPU never directly executes from main memory. SMITH DECL. at ¶ 7. This interpretation impermissibly recasts the Court's construction to merely require memory space from which the CPU fetches program instructions for execution and not memory space where program instructions are permanently stored.

Through its argument, Gemalto invites the Court to accept the following logic: the only memory from which the CPU fetches program instructions at the time of program execution is the L1 cache; therefore, the only memory that can constitute program memory is the L1 cache; accordingly, because all program memory is on-chip in L1 cache, the "all program memory" claim limitation is satisfied. Such an approach manufactures an infringement theory by circumventing the Court's unambiguous claim construction order. *See* CLAIM CONSTRUCTION ORDER at 8 ("all program memory necessary for execution of the compressed application must be located on the microcontroller."). The Court's construction does not state that a memory space becomes "program memory" when program instructions are located on-chip and fetched by the CPU for execution. The Court's construction and supporting analysis make clear that "all program memory necessary for execution" necessarily includes main memory where program instructions are permanently stored and are accessed for "loading" into a temporary memory space that is in turn accessed by the CPU in fetching program instructions. Further, the Court's analysis does not support a view that program instructions stored in off-chip main memory are "data" and thus off-chip main memory merely serves as data memory rather than program memory. Accordingly, the Court's claim construction resolved this matter.

B. Accused Devices

As to the Defendants' accused devices, there is no real dispute raised regarding their operation. Rather, as addressed above, the parties' dispute lies in their disagreement regarding the Court's claim construction. As the premise of the instant motion, Defendants argue that their accused devices do not contain "all program memory" on a single semiconductor substrate because they require "off chip" memory to run the accused Dalvik and Android applications. MTN at 14–15, 22. This memory includes ROM, EEPROM, and RAM memory. *Id.* at 15.

Gemalto does not dispute this, but rather argues that Defendants engage in syllogism by contending the accused devices do not infringe because they can make use of external memory. RESP. at 19. However, by storing program instructions off-chip in main memory, the undisputed operation of Defendants' accused devices does not meet the claim limitation for "integrated circuit card" requiring "a single semiconductor substrate having a central processing unit and all program memory." Therefore, by virtue of the fact that Defendants' devices store program instructions off-chip and access those off-chip instructions to run the accused applications, they cannot literally infringe.

II. Doctrine of Equivalents

To support a finding of infringement under the doctrine of equivalents ("DOE"), a patentee must either: (1) demonstrate an insubstantial difference between the claimed invention and the accused product or method; or (2) satisfy the function, way, result test. *Aquatex Industries, Inc. v. Techniche Solutions*, 479 F.3d 1320, 1326 (Fed. Cir. 2007) (citing Graver Tank & Mfg. v. Linde Air Prods. Co., 339 U.S. 605, 608, 70 S.Ct. 854, 94 L.Ed. 1097 (1950)). Thus, the proper inquiry for the Court is "whether an asserted equivalent represents an 'insubstantial difference' from the claimed element, or 'whether the substitute element matches the function, way, and result of the claimed element.' *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1356 (Fed. Cir. 2012), quoting *Warner-Jenkinson Co. v. Hilton Davis Chem. Co*., 520 U.S. 17, 40 (1997). "If no reasonable jury could find equivalence, then the court must grant summary judgment of no infringement under the doctrine of equivalents." *Deere*, 703 F.3d at 1356.

For the reasons stated above as to why Gemalto's cache memory argument is not viable for literal infringement, Gemalto's argument for infringement under the doctrine of equivalents similarly cannot withstand summary judgment. Gemalto states that "97% of the time the

instruction code to be executed for a given application is stored in the on-chip cache memory before it is requested or needed by the CPU" and argues that that scenario represents an insubstantial difference. RESP. at 22. If 100% execution on the cache does not satisfy the claim limitation, 97% cannot. This argument similarly fails under the Court's construction, as described above.

Further, Gemalto's argument fails to comply with the "all-elements" rule and vitiates the "all program memory" requirement of the "integrated circuit card" limitation. By arguing that the temporary storage of program instructions on-chip in cache memory is insubstantially different from permanent storage of program instructions on-chip in a main memory, Gemalto ignores the Court's claim construction. The Court's claim construction establishes a specific structural requirement that defines an integrated circuit card as used in the patents-in-suit. To permit that requirement to be satisfied based not on where the memory structure permanently holding the program instructions (*i.e.* "all program memory") is located, but rather on where the program instructions can be temporarily held, reads the integrated circuit card limitation, as construed by the Court, completely out of the claim. Set against the Court's construction of the integrated circuit card limitation, the cache memory of Defendants' devices cannot be merely an insubstantial difference. As such, Gemalto's theory of equivalence is impermissible. *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 39 n. 8 (1997) ("under the particular facts of a case…if a theory of equivalence would entirely vitiate a particular claim element, partial or complete judgment should be rendered by the court…"); *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1017 (Fed. Cir. 2006) ("in certain instances, the 'all elements' rule forecloses resort to the doctrine of equivalents because, on the facts or theories presented in a case, a limitation would be read completely out of the claim — *i.e.*, the limitation

would be effectively removed or 'vitiated.'"); *Moore U.S.A. Inc. v. Standard Register Company*, 229 F.3d 1091, 1106 (Fed. Cir. 2000) ("[s]econd, it would defy logic to conclude that a minority—the very antithesis of a majority—could be insubstantially different from a claim limitation requiring a majority, and no reasonable juror could find otherwise.").

III. Indirect Infringement

Indirect infringement requires a showing of direct infringement. *Met-Coil Systems Corp. v. Korners Unlimited, Inc.*, 803 F. 2d 684, 687 (Fed. Cir. 1986) ("Absent direct infringement of the patent claims, there can be neither contributory infringement nor inducement of infringement"). Accordingly, because the Court finds no direct infringement of the patents-in-suit, summary judgment is also proper with respect to Gemalto's indirect claims.[3]

Defendants' accused devices do not meet a limitation of each claim that Gemalto asserts; therefore, the Court **RECOMMENDS GRANTING** Defendants' Motion for Summary Judgment of Non-Infringement.

CONCLUSION

The Court has interpreted the asserted claims of the patents-in-suit to require a single semiconductor substrate with a central processing unit and all program memory. For the reasons explained herein, none of the accused devices meet this limitation either literally or under the doctrine of equivalents. Therefore, the Court recommends **GRANTING** Defendants' Motion.

Within fourteen (14) days after receipt of the Magistrate Judge's Report, any party may serve and file written objections to the findings and recommendations contained in the Report. A

[3] Gemalto asserts indirect infringement of claim 3 of the '727 Patent. (Doc. No. 399, at 6–12). Claim 3 of the '727 Patent discloses a "programmable device." '727 Patent at 19: 12–26. The Court found that a "programmable device" is a "microcontroller" and therefore construed the terms in the same manner, requiring "a single semiconductor substrate integrating electronic circuit components that includes a central processing unit and *all program memory* making it suitable for use as an embedded system." CLAIM CONSTRUCTION ORDER at 16–17 (emphasis added). For the reasons discussed herein, the Court has resolved this dispute and finds Gemalto's argument is without merit.

party's failure to file written objections to the findings, conclusions and recommendations contained in this Report within fourteen (14) days after being served with a copy shall bar that party from *de novo* review by the district judge of those findings, conclusions and recommendations and, except on grounds of plain error, from appellate review of unobjected-to factual findings and legal conclusions accepted and adopted by the district court. *Douglass v. United States Auto. Ass'n*, 79 F.3d 1415, 1430 (5th Cir. 1996).

So ORDERED and SIGNED this 25th day of February, 2013.

JOHN D. LOVE
UNITED STATES MAGISTRATE JUDGE